11. Toffee

Program Name: Toffee.java Input File: toffee.dat

Your little sister has been invited to an Easter Egg hunt. Each egg contains a variable number of miniature chocolate covered butter toffee that absolutely melts in your mouth. She has been given a basket and she can collect as many eggs that she wants subject to the following constraints. The Easter eggs have been arranged in the form of a square grid. She can start anywhere on the first row in that square grid and she can only move to the square directly below or to the square diagonally below and to the right. She can only pick the eggs in the squares that she visits. She wants your help in getting the maximum number of chocolate covered butter toffee.

Input

The first line has a single integer T that is the number of test cases to follow. Each test case has the first line giving N the dimension of the square grid, where $1 \leq N \leq 10$. There are N lines of data that follow. Each line of data has N integers that represent the number of toffees in each egg. The number of toffees in each egg is in the range 1 through 50 inclusive. The integers are separated by one or more spaces.

Output

Your output will be a single integer giving the maximum number of toffees that you can collect for each of the test cases. Since we are not interested in knowing the path that she takes through the grid, it is quite possible that there may be more than one path that yields the maximum number of toffees for a given test case.

Example Input File

```
3
3
4 9 2
3 5 7
8 1 6
4
1 2 3 4
8 7 6 5
9 1 2 3
7 6 5 4
5
14 22 43 27  8
33 19  7 13 41
37 17 37  3 31
 5  9 16 18  2
 6 24 20 23 29
```

Example Output to Screen

```
22
25
134
```

Explanation of Example Output

For the first test case the path starts at 9, then 7 and 6 giving 22.
For the second test case the path starts at 1, then 8, 9, and 7 giving 25.
In the third test case, the path taken starts at 43 then 7, 37, 18, and 29 giving 134.